



## DRILL STEM TEST REPORT

Prepared For: **TDI, Inc**

1310 Bison RD  
Hays KS 67601

ATTN: Herb Deines

**George #1**

**18-12s-18w Ellis,KS**

Start Date: 2013.06.18 @ 23:00:00

End Date: 2013.06.19 @ 06:26:30

Job Ticket #: 53915                      DST #: 1

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.06.22 @ 08:29:45

TDI, Inc  
18-12s-18w Ellis,KS  
George #1  
DST # 1  
Tor - LKC "F"  
2013.06.18



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

TDI, Inc  
 1310 Bison RD  
 Hays KS 67601  
 ATTN: Herb Deines

**18-12s-18w Ellis, KS**  
**George #1**  
 Job Ticket: 53915      **DST#: 1**  
 Test Start: 2013.06.18 @ 23:00:00

## GENERAL INFORMATION:

Formation: **Tor - LKC "F"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 01:28:00  
 Time Test Ended: 06:26:30  
 Interval: **3460.00 ft (KB) To 3594.00 ft (KB) (TVD)**  
 Total Depth: 3594.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Cody Bloedorn  
 Unit No: 43  
 Reference Elevations: 2203.00 ft (KB)  
 2195.00 ft (CF)  
 KB to GR/CF: 8.00 ft

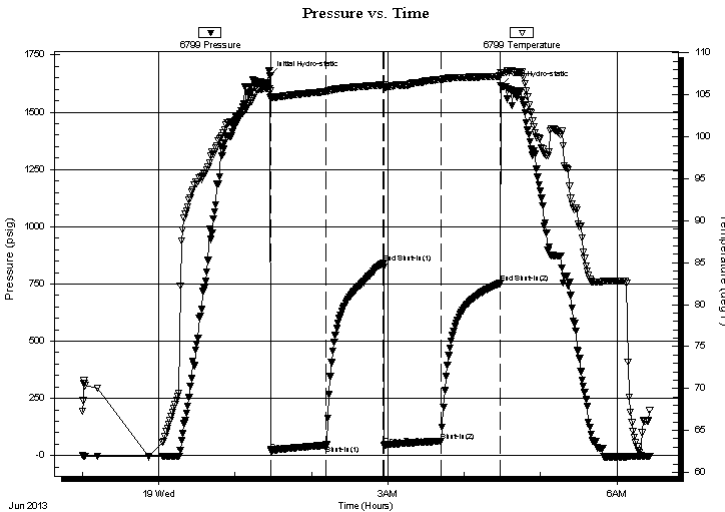
## Serial #: 6799

Inside

Press @ Run Depth: 63.17 psig @ 3589.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2013.06.18      End Date: 2013.06.19      Last Calib.: 2013.06.19  
 Start Time: 23:00:05      End Time: 06:26:29      Time On Btm: 2013.06.19 @ 01:27:30  
 Time Off Btm: 2013.06.19 @ 04:28:45

TEST COMMENT: 45 - IF- 7" blow  
 45 - IS- No return  
 45 - FF- 1 1/4" blow  
 45 - FS- No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1659.40	105.44	Initial Hydro-static
1	20.54	104.84	Open To Flow (1)
44	45.48	105.40	Shut-In(1)
89	840.63	106.20	End Shut-In(1)
90	46.15	105.94	Open To Flow (2)
135	63.17	106.83	Shut-In(2)
181	752.63	107.23	End Shut-In(2)
182	1616.65	107.59	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
107.00	Mud, with show of oil, 100%M	1.50

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

TDI, Inc  
1310 Bison RD  
Hays KS 67601  
ATTN: Herb Deines

**18-12s-18w Ellis,KS**  
**George #1**  
Job Ticket: 53915      **DST#: 1**  
Test Start: 2013.06.18 @ 23:00:00

### Tool Information

Drill Pipe:	Length: 3474.00 ft	Diameter: 3.80 inches	Volume: 48.73 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 38000.00 lb
			<u>Total Volume: 48.73 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	35.00 ft			String Weight: Initial 34000.00 lb
Depth to Top Packer:	3460.00 ft			Final 34000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	134.00 ft			
Tool Length:	155.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3440.00	
Shut In Tool	5.00			3445.00	
Hydraulic tool	5.00			3450.00	
Packer	5.00			3455.00	21.00      Bottom Of Top Packer
Packer	5.00			3460.00	
Perforations	3.00			3463.00	
Change Over Sub	1.00			3464.00	
Drill Pipe	124.00			3588.00	
Change Over Sub	1.00			3589.00	
Recorder	0.00	6799	Inside	3589.00	
Recorder	0.00	8648	Outside	3589.00	
Perforations	2.00			3591.00	
Bullnose	3.00			3594.00	134.00      Bottom Packers & Anchor

**Total Tool Length: 155.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI, Inc

**18-12s-18w Ellis,KS**

1310 Bison RD  
Hays KS 67601

**George #1**

Job Ticket: 53915

**DST#: 1**

ATTN: Herb Deines

Test Start: 2013.06.18 @ 23:00:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.40 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
107.00	Mud, w ith show of oil, 100%M	1.501

Total Length: 107.00 ft      Total Volume: 1.501 bbl

Num Fluid Samples: 0

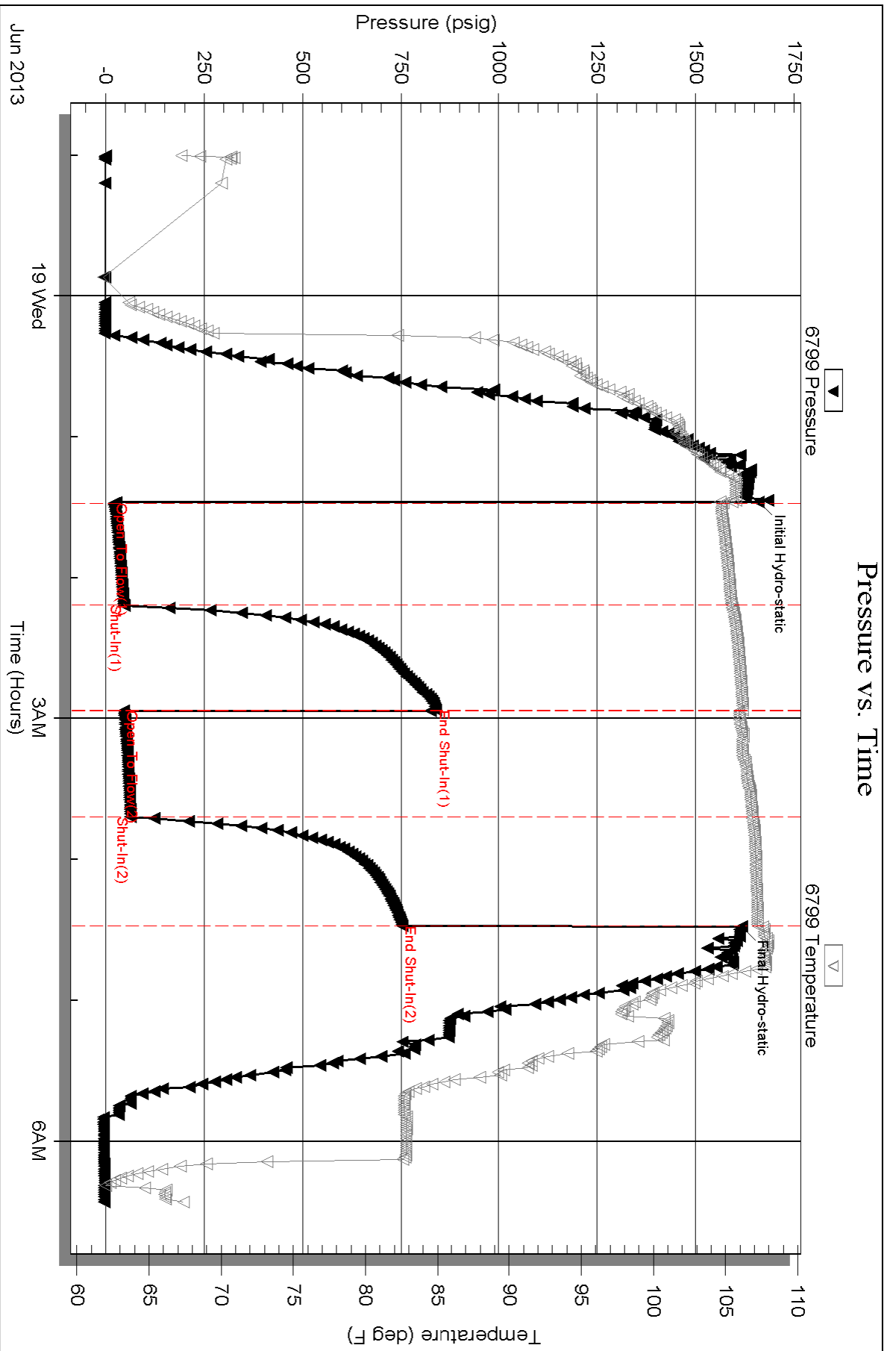
Num Gas Bombs: 0

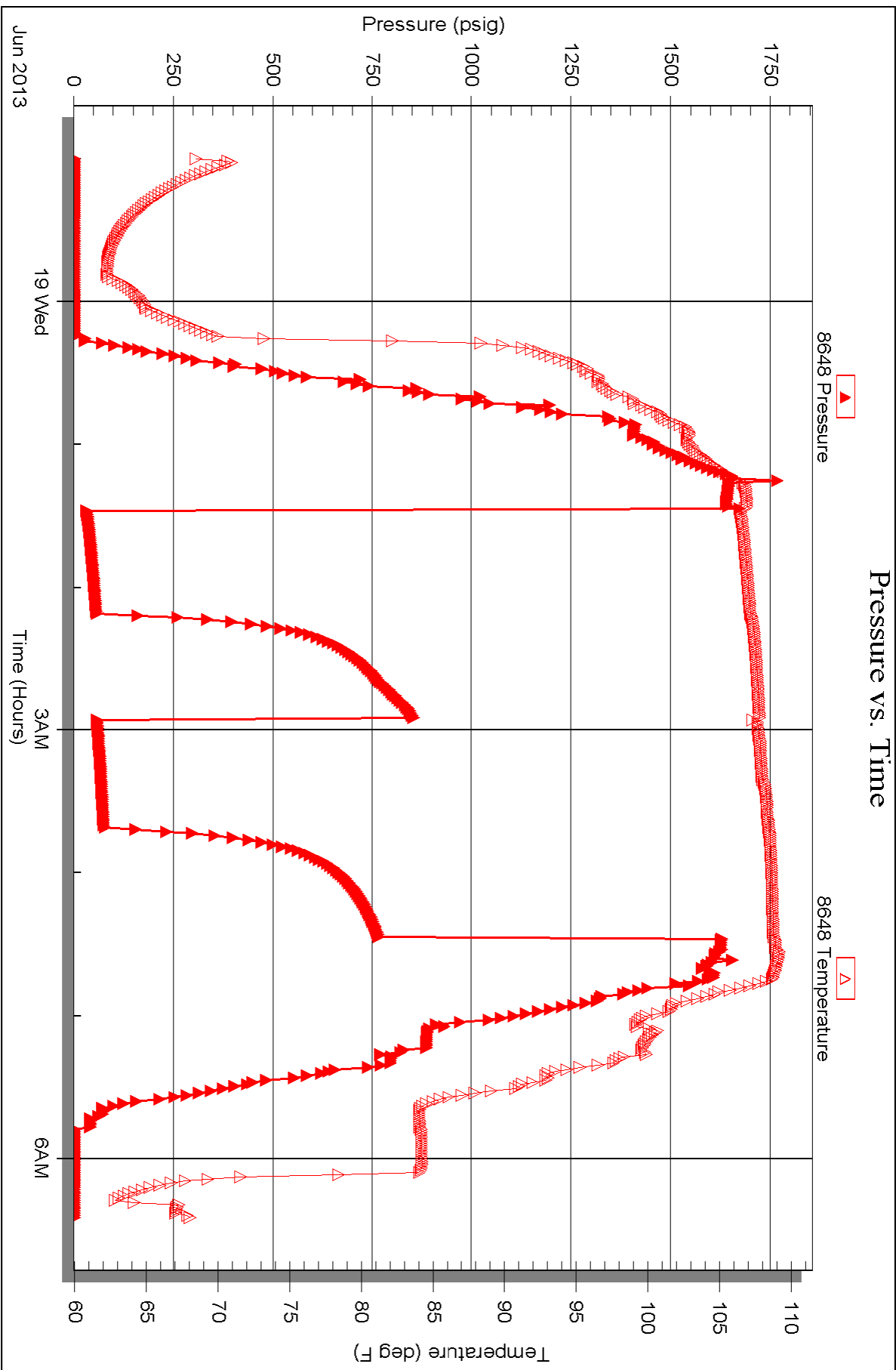
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **TDI, Inc**

1310 Bison RD  
Hays KS 67601

ATTN: Herb Deines

**George #1**

**18-12s-18w Ellis,KS**

Start Date: 2013.06.19 @ 18:43:00

End Date: 2013.06.20 @ 00:59:30

Job Ticket #: 53916                      DST #: 2

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.06.22 @ 08:33:45

TDI, Inc  
18-12s-18w Ellis,KS  
George #1  
DST # 2  
LKC "H-J"  
2013.06.19





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

TDI, Inc  
 1310 Bison RD  
 Hays KS 67601  
 ATTN: Herb Deines

**18-12s-18w Ellis, KS**  
**George #1**  
 Job Ticket: 53916 **DST#: 2**  
 Test Start: 2013.06.19 @ 18:43:00

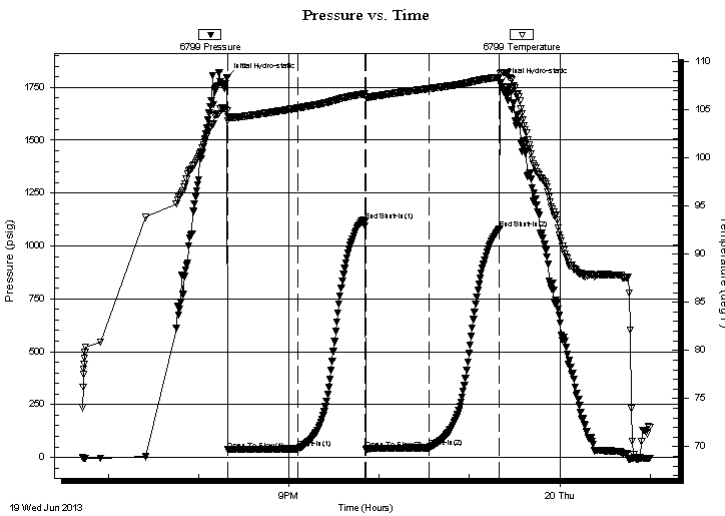
## GENERAL INFORMATION:

Formation: **LKC "H-J"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 20:19:15  
 Time Test Ended: 00:59:30  
 Interval: **3618.00 ft (KB) To 3700.00 ft (KB) (TVD)**  
 Total Depth: 3700.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Cody Bloedorn  
 Unit No: 43  
 Reference Elevations: 2203.00 ft (KB)  
 2195.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 6799 Inside**  
 Press @ Run Depth: 46.81 psig @ 3685.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.06.19 End Date: 2013.06.20 Last Calib.: 2013.06.20  
 Start Time: 18:43:05 End Time: 00:59:29 Time On Btm: 2013.06.19 @ 20:19:00  
 Time Off Btm: 2013.06.19 @ 23:20:30

**TEST COMMENT:** 45 - IF- 5 1/2" blow  
 45 - IS- No return  
 45 - FF- 7" blow  
 45 - FS- No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1797.86	104.88	Initial Hydro-static
1	35.84	103.82	Open To Flow (1)
47	41.46	105.17	Shut-In(1)
92	1117.00	106.63	End Shut-In(1)
92	39.11	106.30	Open To Flow (2)
134	46.81	107.18	Shut-In(2)
181	1081.59	108.37	End Shut-In(2)
182	1770.61	108.73	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
35.00	GMCO, 5%G, 40%M, 55%O	0.49
0.00	30' of G.I.P.	0.00

\* Recovery from multiple tests

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

TDI, Inc  
1310 Bison RD  
Hays KS 67601  
ATTN: Herb Deines

**18-12s-18w Ellis,KS**  
**George #1**  
Job Ticket: 53916      **DST#: 2**  
Test Start: 2013.06.19 @ 18:43:00

**Tool Information**

Drill Pipe:	Length: 3629.00 ft	Diameter: 3.80 inches	Volume: 50.91 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 42000.00 lb
			<u>Total Volume: 50.91 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 37000.00 lb
Depth to Top Packer:	3618.00 ft			Final 37000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	82.00 ft			
Tool Length:	103.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Change Over Sub	1.00			3598.00	
Shut In Tool	5.00			3603.00	
Hydraulic tool	5.00			3608.00	
Packer	5.00			3613.00	21.00      Bottom Of Top Packer
Packer	5.00			3618.00	
Perforations	3.00			3621.00	
Change Over Sub	1.00			3622.00	
Drill Pipe	62.00			3684.00	
Change Over Sub	1.00			3685.00	
Recorder	0.00	6799	Inside	3685.00	
Recorder	0.00	8648	Outside	3685.00	
Perforations	12.00			3697.00	
Bullnose	3.00			3700.00	82.00      Bottom Packers & Anchor

**Total Tool Length: 103.00**



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI, Inc  
1310 Bison RD  
Hays KS 67601  
ATTN: Herb Deines

**18-12s-18w Ellis,KS**  
**George #1**  
Job Ticket: 53916  
Test Start: 2013.06.19 @ 18:43:00

**DST#: 2**

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 47.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.79 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2400.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

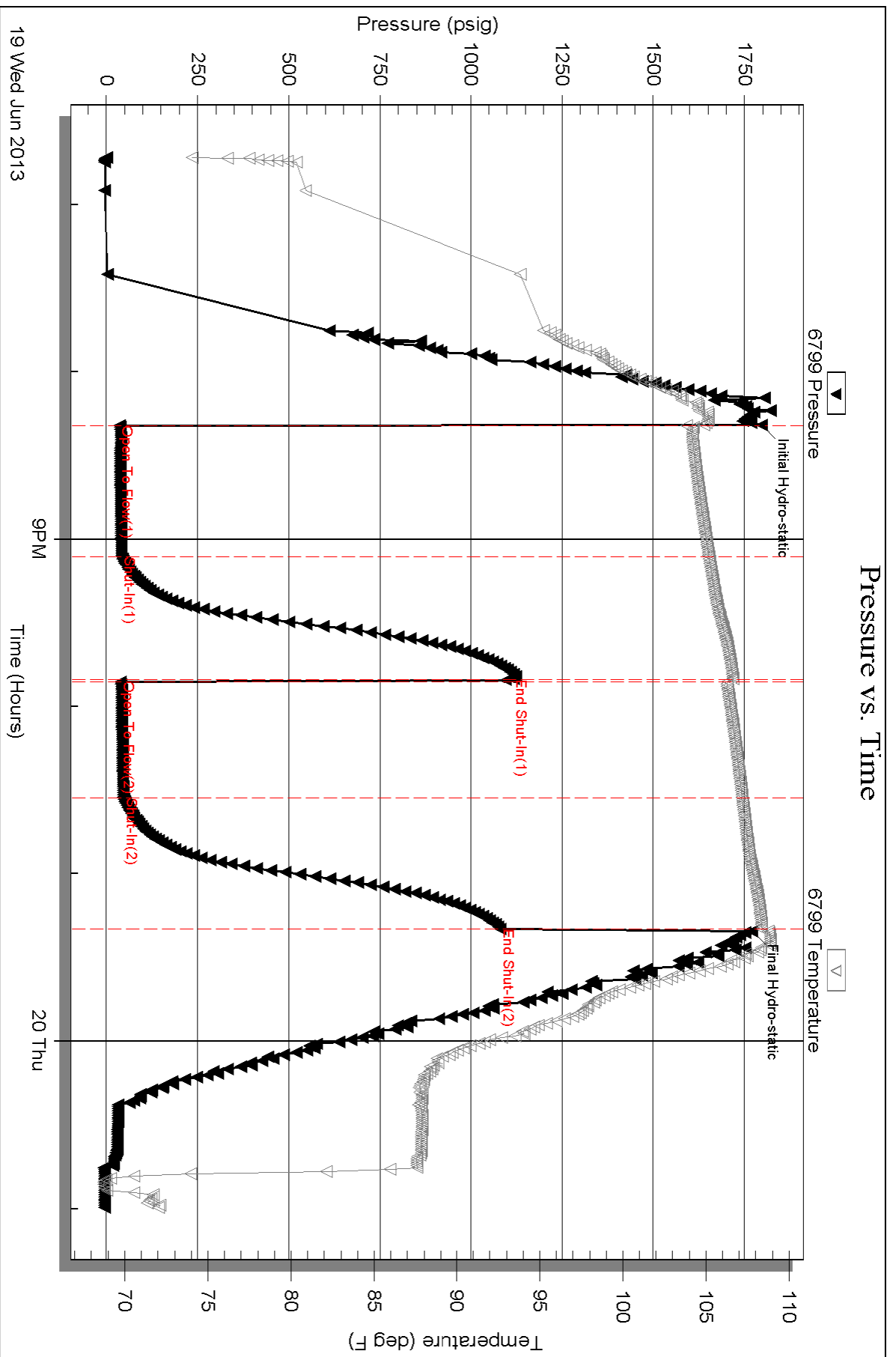
Length ft	Description	Volume bbl
35.00	GMCO, 5%G, 40%M, 55%O	0.491
0.00	30' of G.I.P.	0.000

Total Length: 35.00 ft      Total Volume: 0.491 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments:

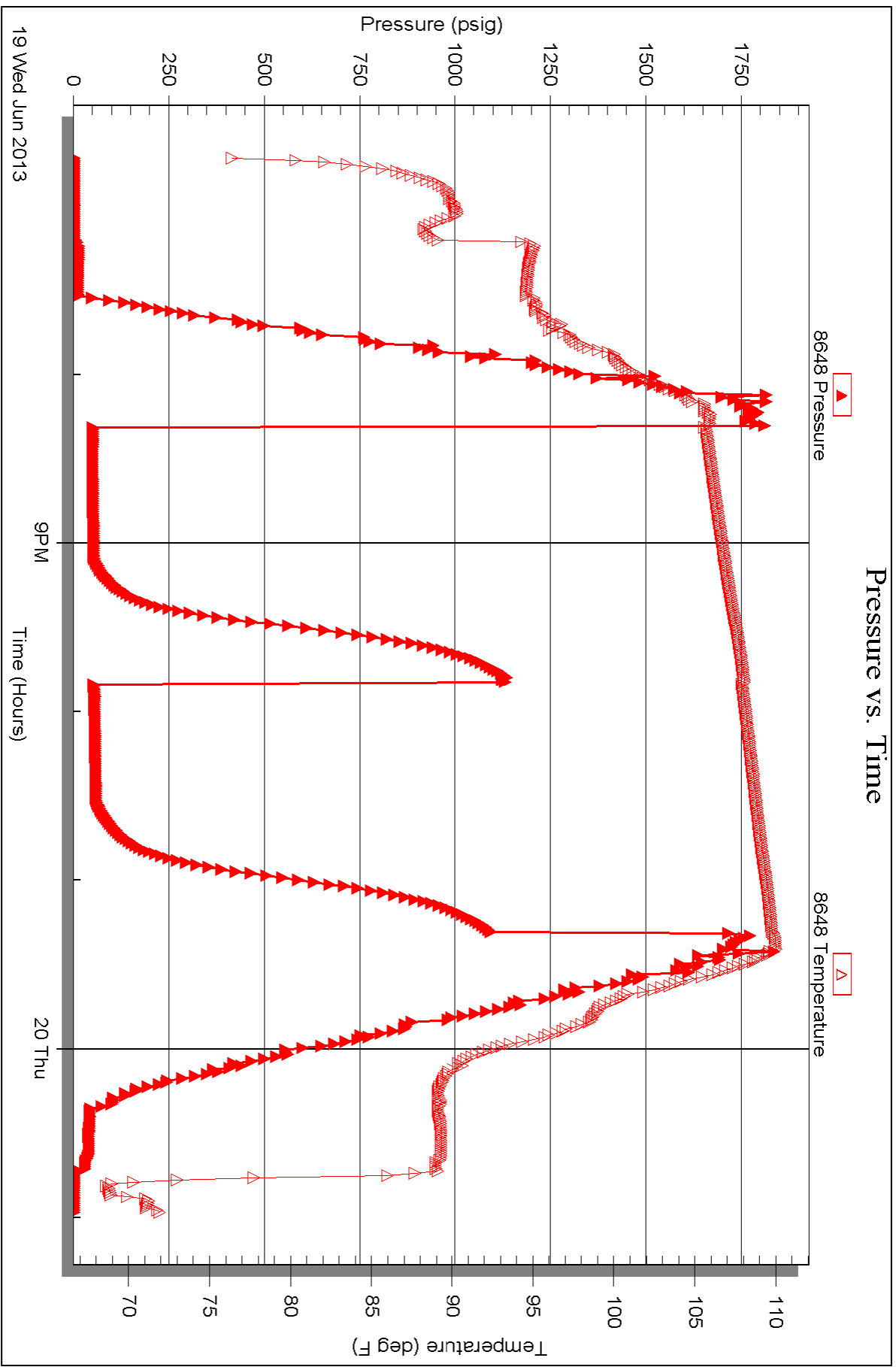


Serial #: 8648

Outside TDI, Inc

George #1

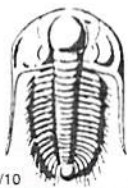
DST Test Number: 2



Triobite Testing, Inc

Ref. No: 53916

Printed: 2013.06.22 @ 08:33:48



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 53915

Well Name & No. George #1 Test No. 1 Date 6-18-13  
 Company TDI LLC Elevation 2203 KB 2195 GL  
 Address 1310 Bison Rd, Hays KS, 67601  
 Co. Rep / Geo. Herb Rig Southwind #1  
 Location: Sec. 18 Twp. 12s Rge. 18w Co. Ellis State KS

Interval Tested 3460 - 3594 Zone Tested Tor A-F  
 Anchor Length 134' Drill Pipe Run 3474' Mud Wt. 8.9  
 Top Packer Depth 3455 Drill Collars Run - Vis 52  
 Bottom Packer Depth 3460 Wt. Pipe Run - WL 6.4  
 Total Depth 3594 Chlorides 1,800 ppm System LCM -  
 Blow Description IF - 7" blow  
ISI - No return  
FF - 1/4" blow  
FSI - No return

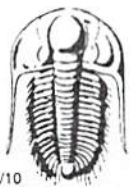
Rec	Feet of	%gas	%oil	%water	%mud
<u>107</u>	<u>Mud - with show of oil</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 107' BHT 107° Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>1659</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>8:00 pm</u>
(B) First Initial Flow <u>20</u>	<input type="checkbox"/> Jars	T-Started <u>11:00 pm</u>
(C) First Final Flow <u>45</u>	<input type="checkbox"/> Safety Joint	T-Open <u>1:27 am</u>
(D) Initial Shut-In <u>840</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>4:27 am</u>
(E) Second Initial Flow <u>46</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>6:26 am</u>
(F) Second Final Flow <u>63</u>	<input checked="" type="checkbox"/> Mileage <u>27 RT</u> 41.85	Comments
(G) Final Shut-In <u>752</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1616</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>45</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby	Total <u>1191.85</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1191.85</u>	

Approved By \_\_\_\_\_ Our Representative Cody Bloch Thank You!

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **53916**

Well Name & No. George #1 Test No. 2 Date 6-19-13  
 Company TDI Inc Elevation 2203 KB 2195 GL  
 Address 1310 Bison rd, Hays KS, 67601  
 Co. Rep / Geo. Herb Rig Southwind #1  
 Location: Sec. 18 Twp. 12s Rge. 18w Co. Ellis State KS

Interval Tested 3618-3700 Zone Tested "H, I, J"  
 Anchor Length 82' Drill Pipe Run 3629' Mud Wt. 9.1  
 Top Packer Depth 3613 Drill Collars Run — Vis 47  
 Bottom Packer Depth 3618 Wt. Pipe Run — WL 6.8  
 Total Depth 3700 Chlorides 2,400 ppm System LCM —  
 Blow Description IF- 5.5" blow  
ISI- No return  
FF- 7" blow  
FSI- No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>35</u>	<u>GMCO</u>	<u>5</u>	<u>55</u>	<u>40</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of <u>30' G.I.P.</u>	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 35' BHT 108° Gravity — API RW — @ —° F Chlorides — ppm

(A) Initial Hydrostatic <u>1797</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>6:09 pm</u>
(B) First Initial Flow <u>35</u>	<input type="checkbox"/> Jars	T-Started <u>6:43 pm</u>
(C) First Final Flow <u>41</u>	<input type="checkbox"/> Safety Joint	T-Open <u>8:19 pm</u>
(D) Initial Shut-In <u>1117</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>11:19 pm</u>
(E) Second Initial Flow <u>39</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>12:59 am</u>
(F) Second Final Flow <u>46</u>	<input checked="" type="checkbox"/> Mileage <u>27 RT x2</u> <sup>83.70</sup>	Comments <u>Loaded tools 6-20-13 @</u>
(G) Final Shut-In <u>1081</u>	<input type="checkbox"/> Sampler	<u>8:30 pm</u>
(H) Final Hydrostatic <u>1770</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>45</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby	Total <u>1233.70</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1233.70</u>	

Approved By \_\_\_\_\_ Our Representative Cody Bloodorn

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.